



Armed Forces College of Medicine AFCM



Musculoskeletal & Integumentary System

Assessment plan

- **Mid module exam** : 90% MCQs & 10% SEQs.... 20 marks
- **End module exam** : 90% MCQs & 10% SEQs.... 40 marks
- **Final written exam**: 70 % MCQs & 30% SEQs.... 80 marks

Examples of short essay questions

Anatomy

- **List contents of cubital fossa from medial to lateral.**

Answer:

- 1- Median nerve
- 2- Brachial artery
- 3- Biceps tendon
- 4- Radial nerve

Anatomy

- **Predict sensory & motor defects following sciatic nerve injury.**
- **Answer:**
- Motor effect -: The hamstring muscles are paralyzed, but weak flexion of the knee is possible because of the action of sartorius (femoral nerve) and gracilis (obturator nerve) .
- All the muscles below the knee are paralyzed.
- Deformity: foot drop.
- Sensory loss: Sensation is lost below the knee except the area supplied by saphenous nerve.

Physiology

• **Q1; Enumerate/List properties of Properties of neuromuscular transmission.**

Answer:

- 1-Unidirectional
- 2- Delay
- 3-Fatigue
- 4- Can be stimulated or inhibited

Physiology

• **Q2: Define oxygen Debt.**

Answer

Extra-amount of O₂ that must be taken into the body during recovery period after muscular exercise.

Physiology

• **Q3: Describe steps of smooth muscle contraction.**

Answer:

- 1) Calcium influx into the cytoplasm: Mainly (90%) from ECF [via voltage-gated calcium channel & ligand-gated calcium channels] • And only (10%) from the poorly developed SR
- 2) ↑ Cytoplasmic Ca^{++} concentration which binds to calmodulin and form calcium – calmodulin complex.
- 3) Activation of calmodulin – dependent myosin light chain kinase enzyme (MLCK) of the thick filament.
- 4) MLCK phosphorylates myosin light chains, a component of the myosin cross bridges, which allows the myosin ATPase to be activated.
- 5) ↑ Myosin ATPase activity. - Binding of myosin to actin.

Pathology

- **1-Define squamous cell Papilloma?**

- **Answer:**

Epithelial tumor forming gross or microscopic fingerlike projections

Pathology

2- A 15-year-old boy is brought to the emergency room because of severe pain in the left hip. History reveals that he fell and had a small injury 10 days ago. On examination, he has fever and tenderness over left hip region. X-ray reveals a lytic lesion at the upper femur with necrotic bone fragments. Aspiration of the lesion reveals pus.

- A- **What is the diagnosis of this lesion?**

Answer :Osteomyelitis *

- B- Mention 2 complications of this lesion?**

- Complications:**

- Pathological fracture.
- Direct spread of infection → arthritis, myositis, neuritis...
- Blood spread of infection → toxaemia, septicaemia and pyaemia.
- Chronic suppurative osteomyelitis. This may be further complicated by:
 - a) Secondary amyloidosis.
 - b) Epithelization of the sinuses which may later give rise to squamous cell carcinoma.

Biochemist ry

•Compare between Von-Geirk's disease and mc Arde's disease

•Answer:

	Von-Geirk's disease	Mc-Arde's disease
Defective enzyme	Glucose-6-phospahtase	Glycogen phosphorylase
Organ affected	Liver	Muscle
Most important symptom	<ul style="list-style-type: none">• Fasting hypoglycemia & lactic acidosis Hepatomegaly Hyperlipidemia & ketosis Hyperuricemia with gouty arthritis	<ul style="list-style-type: none">• Painful muscle cramps during exercise. Increased serum level as CK & LDH

Pharmacology

•Enumerate **FOUR** (4) drugs used in the treatment of myasthenia gravis and mention the mechanism of action of each drug in this case?

Answer:

1- Anticholine-esterase:

- Neostigmine, Pyridostigmine and Ambenonium:
- ↑ Ach at both N & M site (nicotinic and muscarinic sites)
- + direct muscle stimulation

2- Atropine:

- Block unwanted muscarinic actions.

3- Adjuvant ttt:

- a- Ephedrine: potentiates Neostigmine (VD of skeletal BV + facilitate NM transmission)
- b- Caffeine: potentiates Neostigmine (direct stimulation of muscle)

4- Cortisol : ↓ antibody formation

Microbiology

- Give reasons:

Lymphocyte apoptosis is important in central tolerance.

Answer:

- Central tolerance: negative selection
- T cells expressing TCR that recognizes self-peptide (self-reactive clones) are deleted by apoptosis.



Thank You